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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/696,737	10/29/2003	Hirotsuna Miura	9319P-000584	6350
27572 7590 04/18/2007 HARNESSE, DICKEY & PIERCE, P.L.C. P.O. BOX 828 BLOOMFIELD HILLS, MI 48303			EXAMINER DO, AN H	
			ART UNIT	PAPER NUMBER
			2853	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		04/18/2007	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/696,737

Applicant(s)

MIURA, HIROTSUNA

Examiner

An H. Do

Art Unit

2853

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 January 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6, 8-16, 18-27 and 29-31 is/are pending in the application.
- 4a) Of the above claim(s) 2-6, 8-10, 21-27 and 29-31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 11-16 and 18-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

The Amendment filed on 10 January 2007 has been acknowledged.

#### ***Election/Restrictions***

1. This application contains claims 2-6, 8-10, 21-27 and 29-31, drawn to an invention nonelected with traverse in Paper filed on 03 October 2005. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

#### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1 and 11-16 and 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Sharma et al (US 6,364,459).

Sharma et al disclose in Figures 1A-12 the following claimed features:

Regarding claims 1 and 11, a droplet ejecting device (printhead 10) comprising: an ejector (10) that is adapted to eject a liquid stored in a pressure chamber (45) from an ejecting nozzle (20) by applying pressure to the pressure chamber (45); an ejection timing detector (Figure 3 shows surface tension of liquid column versus time) that is adapted to detect a liquid column (60 or 80) being ejected from the ejecting nozzle (20); a droplet separator (Figure 6, element 115) that is adapted to give, the liquid column, an energy that separates the liquid column (60 or 80) from the liquid stored in the pressure

chamber (45); and a controller (column 5, lines 50-52) that is adapted to control the droplet separator to give an energy at a timing when a predetermined time period has elapsed since the ejection of the liquid column detected by the ejection timing detector.

Regarding claim 12, wherein said energy is optical energy (Figure 1A, elements 70 and 75).

Regarding claim 13, wherein said optical energy is coherent-light energy (Figure 1A, elements 70 and 75).

Regarding claim 14, wherein the optical energy comprises a plurality of light beams (77) traveling different directions (Figures 10A-11B).

Regarding claim 15, wherein at least two light beams (77) traveling in opposite directions (Figures 11A and 11B).

Regarding claim 16, wherein said energy is thermal energy (by heater 40, column 5, lines 8-20).

Regarding claim 18, wherein, in said droplet formation assisting step, a longer period is set as said predetermined time period where a volume of liquid to be ejected is larger (Figures 8 and 9).

Regarding claim 19, wherein said ejection timing detecting step includes: emitting light (77) from a light emitter (240) onto the liquid column (Figures 11a and 11B); and receiving, by a photo receiver (240), the light emitted from the light emitter through the liquid, the receiver facing the light emitter through the liquid column, wherein the ejection of the liquid column (80) is detected in response to a change in an intensity of light received by the photo-receiver (240).

Regarding claim 20, including the step of increasing the energy of light (77) emitted by the light emitter (240) (Figures 11A and 11B) at a timing when a predetermined time period has elapsed since the ejection of the liquid column, wherein the energy to be given to the liquid column (80) is provided by the light emitted by the light emitter.

### ***Response to Arguments***

4. Applicant's arguments filed 10 January 2007 have been fully considered but they are not persuasive. Applicant argued that Sharma et al failed to show the detecting of the liquid column being ejected from the nozzle. This argument is not found persuasive because Sharma et al clearly shows in Figure 2 that a row of liquid column (60) being detected by the light beam (70) from the light source (75). Therefore, Examiner maintains that Sharma et al do teach this limitation as shown in the above action.

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Art Unit: 2853

***Contact Information***


6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to An H. Do whose telephone number is 571-272-2143.

The examiner can normally be reached on Monday-Friday (Flexible).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on 571-272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AD  
April 11, 2007

  
An H. Do  
Primary Examiner  
Art Unit 2853